

THE CLAIMS:

- 1 1. A point assembly for an applicator, comprising:
2 a housing having a back end and a tip end with a tip opening;
3 a tip ball positioned in said tip end of said housing and sized to
4 close said tip opening when positioned against said tip opening;
5 a biasing element positioned to bias said tip ball toward said tip
6 opening; and
7 a ball pusher positioned between said biasing element and said tip
8 ball and including a support element and a contact element extending from said
9 support element and having a shape adapted to conform to the shape of the tip
10 ball;
11 wherein:
12 said support element has a front face and a rear face;
13 said contact element extends from said front face;
14 said rear face faces said biasing element;
15 said support element has a cross-sectional dimension and said
16 contact element has a cross-sectional dimension smaller than said support element
17 cross-sectional dimension; and
18 said support element does not contact said biasing element in a
19 lateral direction.
- 1 2. The point assembly of claim 1, wherein said contact element
2 extends outwardly from a center portion of said front face of said support element.
- 1 3. The point assembly of claim 1, wherein:
2 said housing has an inner barrel having a varied cross-sectional
3 shape;
4 said inner barrel has at least a front portion, a middle portion, and
5 a back portion;

6 said front portion is substantially ball-shaped and includes a
7 passageway to said middle portion;
8 said middle portion is outwardly cone-shaped with a narrow
9 section adjacent said front portion and a wide section associated with said back
10 portion;
11 said back portion is substantially cylindrical;
12 said tip ball is positioned in said front portion;
13 said biasing element and said support element are positioned in
14 said back portion; and
15 said contact element extends through said middle portion to meet
16 said tip ball positioned in said front portion.

1 4. The point assembly of claim 3, wherein said support element is
2 configured and dimensioned for insignificant lateral movement within said barrel
3 of the point assembly.

1 5. The point assembly of claim 1, wherein:
2 said housing has an inner barrel in which said tip ball, said biasing
3 element, and said ball pusher are positioned;
4 said support element is substantially cylindrical and said inner
5 barrel has a cylindrical interior wall; and
6 said support element has a diameter selected to allow said support
7 element to slide within said cylindrical interior wall of said barrel without
8 significant lateral movement.

1 6. The point assembly of claim 1, wherein said contact element of
2 said ball pusher is formed integrally with said support element of said ball pusher.

1 7. The point assembly of claim 1, wherein said ball pusher is formed
2 of one of metal, plastic, or glass.

1 8. The point assembly of claim 1, wherein said ball pusher has a low
2 friction against said tip ball.

1 9. The point assembly of claim 1, wherein said applicator is a writing
2 instrument.

1 10. The point assembly of claim 1, wherein said support element
2 includes at least one cut-out portion extending therethrough between said front
3 face and said rear face of said support element for allowing a substance to flow
4 through said cut-out portions for exit through said tip opening.

1 11. The point assembly of claim 1, wherein said ball pusher is formed
2 separately from said biasing element.

1 12. The point assembly of claim 1, wherein said biasing element is a
2 helical spring.

1 13. A ball pusher for positioning in the point assembly of an applicator,
2 said point assembly having a tip opening in which a tip ball is positioned, said tip
3 ball being biased against the tip opening by a biasing element, wherein said ball
4 pusher comprises:

5 a support element having a front face, a rear face, and a cross-
6 sectional dimension, said rear face of said support element being configured for
7 facing the biasing element in the point assembly of the applicator; and

8 a contact element extending from said front face of said support
9 element, said contact element being configured for contacting the tip ball and
10 having a shape adapted to conform to the shape of the tip ball positioned at the tip
11 opening and for pushing the tip ball against the tip opening, said contact element
12 having a cross-sectional dimension smaller than said support element cross-

13 sectional dimension;
14 wherein said support element does not contact said biasing element
15 in a lateral direction.

1 14. The ball pusher of claim 13, wherein said support element has at
2 least one cut-out portion extending from said front face to said rear face.

1 15. The ball pusher of claim 13, wherein said contact element is
2 substantially cylindrical.

1 16. The ball pusher of claim 13, wherein said contact element is
2 formed integrally with said support element.

1 17. The ball pusher of claim 13, wherein said ball pusher is formed of
2 one of metal, plastic, or glass.

1 18. The ball pusher of claim 13, wherein said contact element extends
2 from the center of said support element.

1 19. The ball pusher of claim 13, wherein said contact element is
2 perpendicular to said support element.